April 1964

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NATIONAL DIGEST

Civil Emergency Planning

Interpretation and Analyses of Fallout Risk

Fallout Protection Survey in Alberta

British Columbia Emergency Fire Defence Plan

Tests and Exercises

Schools and Emergency Measures

EMERGENCY MEASURES ORGANIZATION

THE EMO NATIONAL DIGEST

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The EMO NATIONAL DIGEST is published bi-monthly to provide current information on a broad range of subjects dealing with civil emergency planning. The magazine is published in English and French and may be obtained by writing to the Emergency Measures Organization, Daly Bldg., Ottawa.

In addition to publishing articles which reflect Canadian Government policy the Digest may also publish articles by private individuals on subjects of current interest to the emergency measures programme. The views of these contributors are not necessarily subscribed to by the Federal Government.

A/Director: P. A. FAGUY *Editor:* A. B. STIRLING.

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1964

Announcement

R. Byrns Curry, Director of the federal Emergency Measures Organization since 1957, has been appointed Assistant Deputy Minister of the Department of Citizenship and Immigration, and Director of Immigration.

Mr. Curry, a former native of Nova Scotia is a graduate of Acadia and London Universities and of the Harvard Law School.

As former Director of Family Allowances for Canada from 1945-1957 and Director of Old Age Security, 1952-1957, as well, R. Byrns Curry has also served as Canadian representative to the UN Economic and Social Council and to the Social Commission of the UN, of which he was Chairman in 1953.

His association with civil emergency planning programmes goes back to 1949 when he was the Department of National Health and Welfare advisor to the federal civil defence coordinator on emergency welfare matters.

Mr. Curry assumed his new position on Monday, March 15, 1964. P. A. Faguy, EMO Assistant Director, Governmental Arrangements, has been appointed Acting Director.

CIVIL EMERGENCY PLANNING AT VARIOUS LEVELS OF GOVERNMENT

The following has been adapted from an address made by R. B. CURRY, *Director of the Federal Emergency Measures Organization, to the Alberta Emergency Measures Organization Municipal Conference, held in Edmonton, January 23, 1964.*

IT would be difficult for one to over-emphasize the importance of the municipalities in the development of emergency plans and preparation of suitable measures, not only against wartime emergency but against those natural disasters that arise from time to time. The first level of governmental authorities that will react, and on whom people will depend, is certainly municipal. In consequence a major responsibility falls upon municipal authorities, both those elected and those appointed. We have recognized that planning of this sort is new and requires background and knowledge that municipal people ordinarily have not found time to acquire. Consequently, help has been needed and this has beeen given largely by provincial authorities. However, in an endeavour to get an overall approach to this matter throughout Canada, and such an approach is vital, we at the federal level have also undertaken certain responsibilities.

The rather well-known *Survival Planning Guide for Municipalities* has been produced by our office. This has been in use for some time and experience has shown the need for careful revision and up-dating. This is now being done.

The most significant form of federal support through the provinces and on to the municipalities has been in the financial field. In general, federal funds account for 75 per cent of the monies spent either by the provinces or by local governments on emergency planning. There has been a ceiling on the total amount of federal dollars provided for these purposes, determined on a basis of the population within each province.

There are other important forms of federal support beside that of money. A volume of public information, either through the medium of publications, posters, radio and television releases, or in a variety of other forms is provided wholly at federal expense. The pamphlet programme alone has cost a great deal of money. There is a range of well-written pamphlets for farmers, people who live in smaller towns and villages, people who live in bigger cities such as Calgary and Edmonton, and people who live in areas thought to be likely targets for the enemy in the event of war. All this pertinent information is available without charge to any Canadian simply on request made to Box 10,000 in the capital city of his province.

Beside the guide for municipal planning, a good deal of other material covering the doctrine and the mechanics of emergency planning, particularly against wartime hazards, has been provided to the provinces. Each provincial Emergency Measures Organization, consequently, has an opportunity to work in a national setting in this respect. Coupled with this dissemination of doctrine has been the national emphasis placed upon emergency planning. In this respect the Civil Defence College at Arnprior, Ontario, is now given wholly to training in emergency planning. Operation of the College is maintained federally at a cost of approximately $1,000,000 a year. This amount covers all expenses including maintenance and travel for some 2,000 to 3,000 persons from all over Canada who come to the College to take courses. Eventually, the College should provide staff training designed to benefit those who already have had local training in emergency measures and who have been assigned duties in the event of war.

Another form of federal support for provincial and local planning arises through the emergency organization of federal public services in each province. All departments of the federal government that have staffs in the provinces, such as Transport, Agriculture, National Health and Welfare, Public Works, are closely co-ordinated through the federal EMO Regional Director of each province.

Federal support is also given to provincial and local emergency planning through military resources. The Canadian Army is charged with responsibilities of vast importance for aid to civilians in the possible event of war. They have made very wide-spread preparations and have developed an operational capability to this end.

So far as physical preparations are concerned, support to the provinces (and through them to their municipalities) is being provided through Regional Emergency Government Headquarters. Construction of these permanent REGHQs has been completed in six provinces. These emergency headquarters are designed for civilian use in wartime although they are manned in peacetime by the Army, which has important communications installations in each. In wartime they would accommodate elements of federal civilian departments, provincial departments of government, as well

as the Army. Each REGHQ is fully protected against radioactive fallout and provided with completely adequate communications.

It would be of interest to mention some of the major developments in overall federal emergency planning during 1963-64. On the administrative side, the federal Emergency Measures Organization itself has undergone a change of base and a change of status. It has been made responsible to the Honourable C. M. Drury, who answers to Parliament for this operation of government, as well as for Defence Production, the Department of Industry, and numerous other government agencies. EMO itself has been made a department of government for administrative purposes. The Civil Defence College which formerly was the responsibility of the Department of National Health and Welfare has, since July 1963, been incorporated into the Emergency Measures Organization. During December, Parliament dealt with EMO estimates for 1963-64 and the debate in the Committee of Parliament, while short, was significant. The Minister, Mr. Drury, made a very forthright statement as to the place of emergency planning, saying that it is an important part of our total defence and that it is highly deserving of attention and support by the Government. He was stoutly supported in this attitude by the Honourable Mr. Churchill who spoke for the official opposition.

Another important development has been the reduction by the Department of National Defence in certain of its survival estimates as part of the total retrenchment in that department. While it is not possible to calculate just what effects will follow, it would appear that added responsibilities will be placed on civilian authorities. A good deal will depend upon the size of the Militia and the nature of the role that they are assigned in DND's new planning. It is certain, however, that the role of the Department of National Defence in respect to civilian emergency measures and their support will still be extremely significant.

During the year the Canadian Broadcasting Corporation brought its capacity for conveying public information and instruction to a 24-hour a day level. This is highly important in the event of a wartime emergency. Such capacity was evident during the period of intense broadcasting activity at the time of President Kennedy's assassination.

The federal Emergency Measures Organization has conducted in conjunction with the DRB and with personnel from the United States and the United Kingdom, important programmes of testing and development at Suffield, Alberta. There, prototype models of shelters of various types have been tested, together with important equipment such as blast doors, valves, and other essential elements.

The programme of procurement of radiac instruments for checking the level of radioactive fallout through civilian organizations has gone ahead quite rapidly in several provinces. This is a programme in which the federal government pays 75 per cent of the costs and bears the whole expense of maintenance and repair.

Important problems likely to arise in wartime emergency on the borders of the United States and Canada have been studied during the year and machinery has been developed to consider suitable arrangements in peacetime that could be brought into immediate effect in the event of a national emergency. A new committee consisting of two very senior U.S. representatives and two Canadians, including the Secretary to the Cabinet and the Director of EMO, has been constituted by the governments concerned.

The whole field of emergency legislation covering the various orders and regulations that would be required by federal departments of government in wartime has been reviewed and is now in tidy shape. If required this legislation could be put into effect almost instantly. This is the sort of thing that would take many days or weeks if the emergency hit us and we were not ready for it.

The financial assistance programme was expanded during the year 1963-64 by an addition of funds and a number of provinces gave considerably increased attention to their emergency planning in consequence. The most notable of these undoubtedly was Quebec which had started more slowly in this field but has now come on at a very rapid pace.

In spite of heavy pressure to hold all federal programmes at the 1963-64 level at most, or to decrease the costs if possible, (and this is reflected in the DND estimates), it appears likely that federal funds for financial assistance programme with the provinces and municipalities will be available at the current level. It is hoped that with the provinces EMO can give more attention to the procurement of equipment in the coming year. People to do planning are important, but equipment to give effect to those plans if an emergency should arise becomes of great importance also as plans are developed.

I have already indicated that we are in the process of revising the emergency planning guide for municipalities. This work should advance rapidly in the next several months.

Federal EMO will continue to give a good deal of attention to research and development and its small corps of engineers will be kept extremely busy. They are working with other departments of government and with commercial scientific organizations as required. Research will go forward in respect to shelters of various kinds, including dual purpose shelters having both a wartime and a peacetime use. Examples are dual purpose garages, schools, rinks, and bowling alleys. The federal EMO Engineering Staff is also responsible for examination of the radiac instrument programme to ensure that we get the most suitable instruments for our purposes at the lowest possible cost. They are conducting a fairly broad programme of experimentation at Suffield, and they are responsible for studies being carried on with the co-operation of other

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departments of the federal government in such fields as fire hazards arising from nuclear attacks on major cities. The same section is responsible with the Department of Public Works for a major survey in one of the provinces, of larger buildings, both publicly and privately owned. This programme is designed to develop methods and techniques that can be applied later in the other provinces.

One of the most important programmes now under way and to be considerably expanded in 1964-65 is that of economic surveys. With the co-operation of the United States and using many of their methods and even their computers, EMO is engaged in getting an inventory of basic items of supply in Canada; what they are, where they are to be found, and the possible losses that would occur to them under various patterns of attack on this country. This is of vital importance in order to estimate in advance what supplies would survive and how they could best be used.

During the year the EMO will endeavour to do a considerable amount of streamlining with respect to the Civil Defence College and its courses, in order that it will serve as fully as possible the needs of leaders in civil emergency planning and operations throughout Canada. With the provinces, federal EMO will continue to secure a supply of suitable people to attend the College at federal expense. They should number somewhat more than 2,000 through the year. If local training within the provinces is well done, the type of candidate for courses at the Civil Defence College should be confined to those who are doing more advanced training in civilian operations in wartime.

It is hoped that the provision of accommodations for the zone programme, which is the geographical wartime subdivision within a province or region, will go forward fairly rapidly. Zone headquarters require construction or the adaptation of existing buildings in order to secure fallout protection designed to provide working accommodation for 75 to 100 people. Two such zone headquarters have been provided already in British Columbia. It is hoped to extend the programme across a number of other provinces next year.

Among the important objectives in 1964-65 will be an endeavour to capitalize on the peacetime disaster aspects of emergency planning. It is obvious that while the main return from the great amount of work and money that has been put into civil emergency planning would arise in the event of nuclear war, there is still a most useful result to be secured in the event of sizeable natural disasters. EMO has made a review of the number of these occurrences in the last four or five years and find that there have been 120 in Canada during that period. That is, there were 120 occasions when civil defence or civil emergency workers were called upon for assistance. These have involved fires, floods, hurricanes, airplane disasters and a variety of other types of emergencies. It is most important that the emergency measures organizations throughout Canada be fully prepared to turn their personnel and facilities to instant use in the event of natural disasters. This ability will go a long way to justify in the minds of Canadians the effort and expense arising from emergency planning. While its use in respect to the threat of nuclear war is basically insurance against an event that we hope may never occur, we do know that there is a constant history of natural disasters. Canadians will be much more inclined to accept and support vigorously civil emergency planning if they are convinced that it has a real place in respect to natural disasters as well as serving as most worthwhile insurance against wartime hazards.

On the whole, the general attitude across the provinces is one of sober realization of the need for this sort of planning. Today with the international situation somewhat easier, there is some inclination to relax to a degree, the pressure on emergency planning. All thoughtful Canadians, however, recognize that the basic challenges to us and to the West as a whole, have not really lessened significantly. While certain attitudes may have softened, action toward the achievement of real peace has not yet followed. In the meantime our governments at all levels, municipal, as well as provincial and federal, must continue to give attention to the provision of those plans and preparations that would be required almost without notice in the event of international conflict involving Canada. •

Effective February 25, 1964, the Province of Manitoba is discontinuing the term "Civil Defence", and henceforth the Branch will be known as the Manitoba Emergency Measures Organization.

THE INTERPRETATION AND ANALYSIS OF FALLOUT RISK

by

G. D. KAYE
(*Systems Analysis Group, Defence Research Board*)

This paper is based on studies by the author and his colleagues in the Systems Analysis Group, D.S. Crombie and J. R. Pritchard. The opinions expressed in the paper are those of the author and are not necessarily shared by the Defence Research Board or the Department of National Defence.

Introduction

Over the past year or two there have been important changes in thinking about nuclear war. The idea that any use of nuclear weapons, however limited, would trigger a nuclear strike, and the corollary that the only rational way to start a nuclear war is to destroy the enemy's strategic striking force in the first blow has now been superseded by the recognition that a full scale nuclear strike is a last resort to be avoided so long as there is any available alternative. It is the announced policy of the United States to provide suitable alternative choices of military or non-military action to meet aggression; this is the doctrine of "options" or flexible response. There is reason to believe that the USSR will act in a similar way, although perhaps from different motives, so long as the USA maintains its present superiority in strategic weapons. The general effect of this change in the strategic environment is to make all-out nuclear war extremely unlikely, but the same cannot be said for controlled or limited nuclear war, which must be regarded as possible so long as existing sources of tension between east and west remain.

The public attitude to civil defence is still largely based on the view that an all-out attack is the only one worth considering and that in this event little can be done. This view is bound to change, but in changing one should avoid the other extreme, that by definition limited war is something very remote from North America. This view is at variance with the doctrine of flexible response which does envisage the possibility of a limited number of nuclear bursts in North America, by accident or design, and demands maximum care and restraint in making a response. Under the new doctrine a full scale strike is triggered only by something approaching a full scale attack.

Whether or not we like the idea, so long as the United States maintains the doctrine of flexible response we must accept the view that a limited or controlled attack on North America is much more likely than an all-out attack, and should plan our defences accordingly. This will be unwelcome to those who believe that nuclear war is "unthinkable", but for the purposes of the present discussion it is an inescapable fact.

Attack Configuration

The probable nature of a limited attack is rather difficult to determine. The situation is very different from an all-out attack where the important targets are well defined and the enemy is expected to attack them all, as heavily as his resources will permit. There are perhaps 200-300 of these important targets in North America, including about 20 in Canada.

One important requirement for a limited attack is that it should not be mistaken for an all-out attack. Almost certainly direct attack on a number of cities

would be taken as an indication that an all-out attack was in progress. The objectives of a limited attack are to secure a military advantage by attacking military targets and to create disorder and discomfort, rather than to destroy population. A limited attack on cities cannot be ruled out; one way in which it might be carried out without being mistaken for an all-out attack would be for the attacker to deliberately place a ground burst outside a city to produce maximum fallout effect in it. The most probable targets are military, but there would be a hazard to the civil population in that the attack of hardened military targets would produce very large quantities of fallout. Indeed it is likely that in any limited attack on North America the greatest risk to the civil population would be from fallout effects, irrespective of the choice of targets.

The Case for Fallout Shelters

The object of passive defence is to reduce the area of damage arising from a nuclear burst by putting protection around the vulnerable elements of the target. Any reduction in the damage area will reduce damage or casualties, except in the special case where delivery is very accurate and the target is small. This saving in damage or casualties produced by the protection can only be cancelled out by increasing the weight of attack, consequently passive defence is very suitable for defence against a limited attack.

In the past most fallout studies have been made on the assumption of an all-out attack. It is desirable that a reassessment of the value of fallout shelters should be made for the limited attack, for the following reasons:—

(1) Limited attack is more likely than all-out attack.
(2) In limited attack the greatest danger to the civil population is likely to be from fallout.
(3) Since the attack is limited the value of shelter protection is not likely to be neutralized by increased weight of attack.

A preliminary analysis is made in the present paper, starting with the standard approach of assessment against an all-out attack, and showing how this needs to be modified in the case of limited attack.

Standard Approach

The standard approach to the assessment of fallout effects has been to select a "worst case" (representing an all-out attack) and to assess it in detail. A specific all-out attack is postulated, the specification including the geographical position of points of burst and the size of warheads. Weather conditions are also specified and under these conditions the fallout pattern (in terms of accumulated dose) from each burst can then be calculated. Any specific sampling point may receive fallout from a number of bursts, and the overall cumulative dosage at the point is obtained by adding the dosage from all bombs which contribute to fallout there. The method of calculating the dosage is well known and I do not propose to describe it here.

This simple calculation is not enough. Fallout patterns are very sensitive to weather conditions, and the conditions which will occur at the time of a future attack cannot be predicted in advance. It is therefore necessary to consider the range of possibilities. This is usually done by repeating the calculations for other weather conditions until a sufficient variety of cases has been considered. In our assessment we have followed the Canadian Army Operational Research Establishment (CAORE) in taking a sample of 100 different sets of weather conditions. This gives, for each sampling point, an estimate of the cumulative dosage on 100 separate occasions; from this a frequency distribution of the dosage received at the point can be constructed. The distribution gives information of the type: "On 5 per cent of occasions the cumulative dosage exceeded 3000 roentgens and on 70 per cent of occasions it exceeded 50". If results for a sufficient number of sample points are available it is possible to draw contours on a map of Canada outlining those areas where a given dose is exceeded on more than a given percentage of occasions, for example those where a dosage of 200 roentgens will be exceeded on more than 25 per cent of occasions. Such contours are impressive but tend to be misleading because they convey an air of generality which is unwarranted in view of the fact that they are derived for a specific and arbitrary attack.

The variation of the attack itself should, of course, be taken into account. However once the attack has been assumed to be an all out or general one, the scope for variation is somewhat limited. The probable targets

can be fairly easily identified, and the possible variations are of the following types:—

(i) Exclusion of a few of the selected likely targets or inclusion of a few not selected.

(ii) Variation by class of target, e.g. attack confined to military targets alone, to cities alone, or to include both.

(iii) Variation by location of target, e.g. Canadian targets not included.

(iv) Variation in weight of attack, e.g. using two missiles per target to guard against failures.

In our studies of general attack we have considered a number of these possibilities, giving most attention to two extreme cases:—

CASE 1—A heavy raid which is directed against both military targets and cities in the US and Canada, doubled to allow for two warheads against each target. (Described as "Double Heavy" attack).

CASE 2—A raid with 50-100 MT bombs designed for maximum destruction of population centres and regarding fallout as a bonus to be taken when use of a ground burst does not interfere with the primary purpose of achieving direct destruction. (Described as the "SAG Attack").

In general the first gives maximum fallout risk in eastern Canada out of all the cases considered, and the second the maximum risk in Western Canada.

In order to link up the fallout distribution with protection it is necessary to decide on a critical dosage level for production of casualties. This may be defined as the level causing death, or the level causing casualties requiring lengthy medical treatment. We have considered both, but in the examples given here the second is used. An adjustment has been made to allow for the variation of the critical doses between different individuals. Having defined the critical level, it is divided into the calculated cumulative dosage to determine the effective protection factor required on that occasion to reduce the dosage received to a sub-critical level; the results can then be plotted in terms of effective protection required instead of in terms of dosage.

Some specific results are shown in Figures 1 and 2. Figure 1 relates to a small Canadian city in one of the heavier fallout areas. The vertical scale represents the percentage of occasions in which casualties would be experienced in the area, following an attack; it may be regarded (in a restricted sense) as the probability of becoming a casualty. The horizontal scale shows the

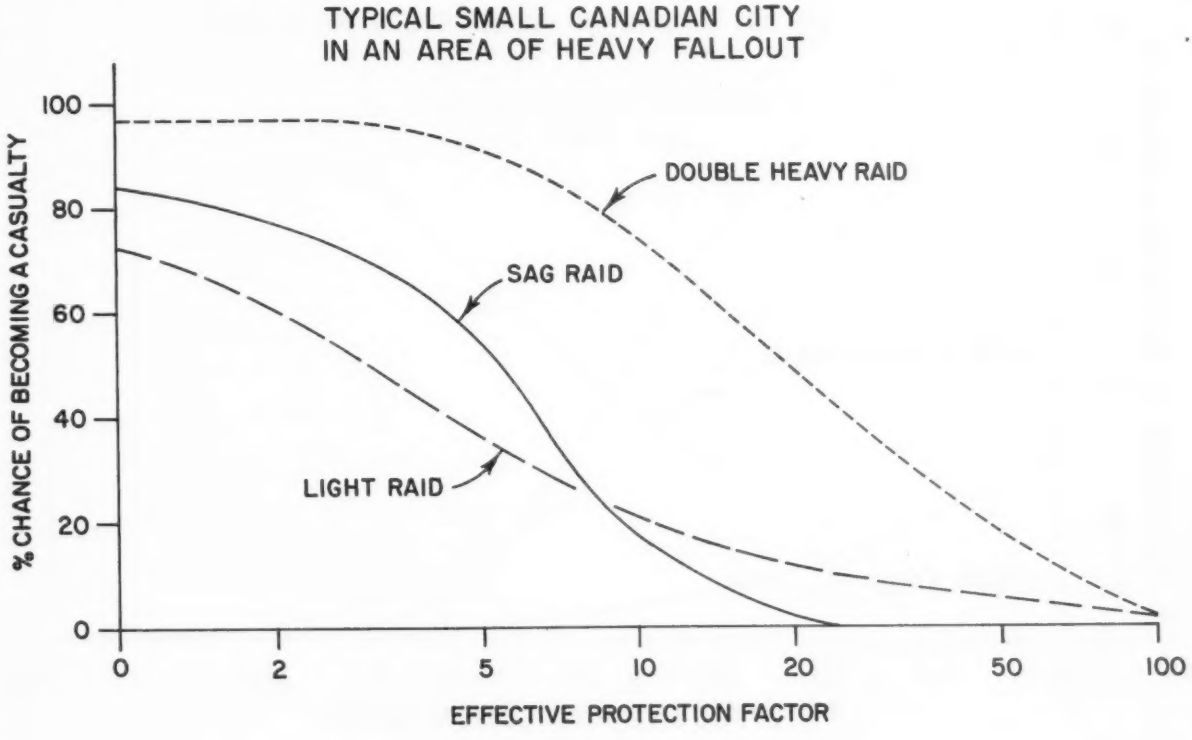


FIGURE 1

effective protection factor provided. The different curves relate to different attack specifications:—

1. The "Double Heavy Attack"
2. The "SAG Attack"
3. A light general attack (described by CAORE).

The following table shows some useful figures deduced from the curves of Figure 1.

EFFECTS OF PROTECTION

	Assumed Raid		
	1	2	3
Probability of Becoming a Casualty			
(*a*) No Protection	97%	84%	63%
(*b*) Effective Protection Factor of 10	75%	17%	22%
Protection Factor Required to Reduce Probability to 10%	67	13	25

Figure 2 shows similar curves for a small city in western Canada. It will be noted here that an effective protection factor of 10 could reduce the probability of becoming a casualty to less than 6 per cent in all the raids considered. These curves are more representative of the general level across Canada than the first set. In view of this it is worth emphasizing that an effective protection factor of 10 can readily be achieved without the construction of elaborate shelters, if cost is the primary limitation.

Limited Attack

The conclusion was reached in the first part of this paper that limited attack was much more likely than general attack. An argument can be advanced, therefore, that if protection is to be provided, it should be designed primarily against limited attack. The question then arises—how should the standard approach be modified to evaluate fallout shelters in these circumstances?

The most obvious difference lies in the weight and distribution of attack; the limited attack will probably include not more than 10 per cent of the targets considered likely for a general attack. If the sample of possible targets selected for limited attack are all in one area, the fallout in the neighbourhood of that area will approximate to the level in a general attack; however, in that case there may be little fallout elsewhere. It is unlikely that in limited attack there would be any "doubling up" of warheads against individual targets, and the general attack it resembles is more likely to be the "light" attack rather than the "SAG" or "Double Heavy".

Another major difference is in the treatment of cities. In the standard assessment there are no sampling points in those cities which are on the list of targets,

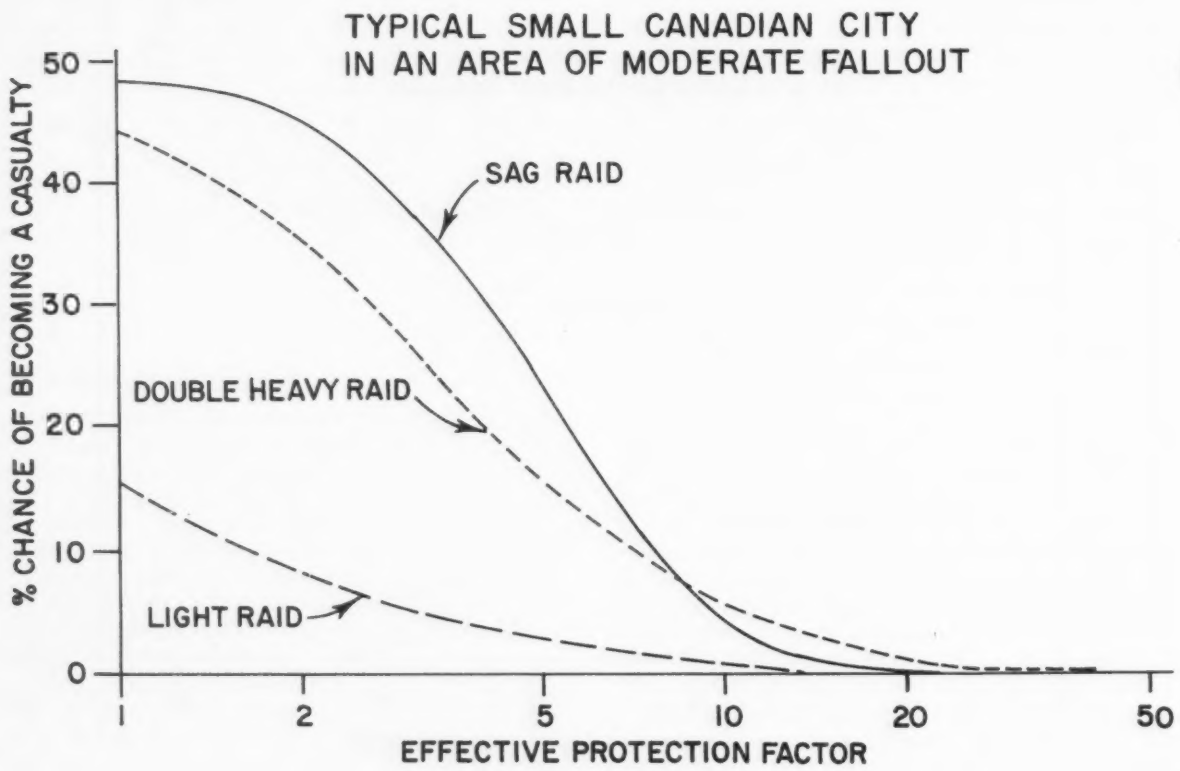


FIGURE 2

on the grounds that fallout is irrelevant in areas of complete devastation. In the limited attack however, it is conceivable that bombs would be burst outside cities in such a way as to produce heavy fallout over the cities concerned. This would imply considerably greater risk in the cities (which the fallout pattern would be planned to cover) than elsewhere, where the fallout effects would be more or less random.

Figure 3 shows the result of a rough calculation for Toronto on the assumption that a 5-megaton bomb is correctly placed for maximum fallout over the city. It shows that the provision of shelter with an effective protection factor of 10 could save about 30 per cent of the population, and one with an effective protection factor of 100 could save about 75 per cent. To save 90 per cent of the population would require a protection factor of several hundreds. Results for other cities would be very similar. Comparison of these figures with those for two typical small cities in a general attack, suggests that it may be very desirable to provide greater fallout protection in major cities than elsewhere.

Implications

If the hypothesis of the limited attack holds, a reassessment of the value of fallout shelters is necessary, on the lines discussed above. Even the preliminary examination we have made gives rise to a number of interesting implications regarding the nature of a fallout shelter programme. These are summarized in the following table.

1. Attack might be designed to produce a heavy fallout on major cities.
2. Savings in casualties are real.
3. An effective protection factor of 10 may be adequate outside cities.
4. General attack analysis indicates priority areas.
5. Major cities may require greater protection (say 100).
6. Protection is more easily provided in cities.
7. Gradual build-up is possible.

First, the object of the attack is to display sufficient evidence of the unpleasantness of all-out nuclear war to encourage settlement of the dispute by other means, without doing so much damage that retaliation is inevitable. A fallout attack against cities might in some circumstances be appropriate for this purpose.

Second, because the attack is limited by other considerations, it will probably not be increased to produce more casualties if the defence manages to save some. Thus savings in casualties are real, not illusory.

Third, we have argued that the worst risk for any area (except major cities) is comparable with the risk experienced in a light general attack. For a small city in one of the heavier fallout areas, shelters with an effective protection factor of 10 would reduce the probability of becoming a casualty by a factor of 3,

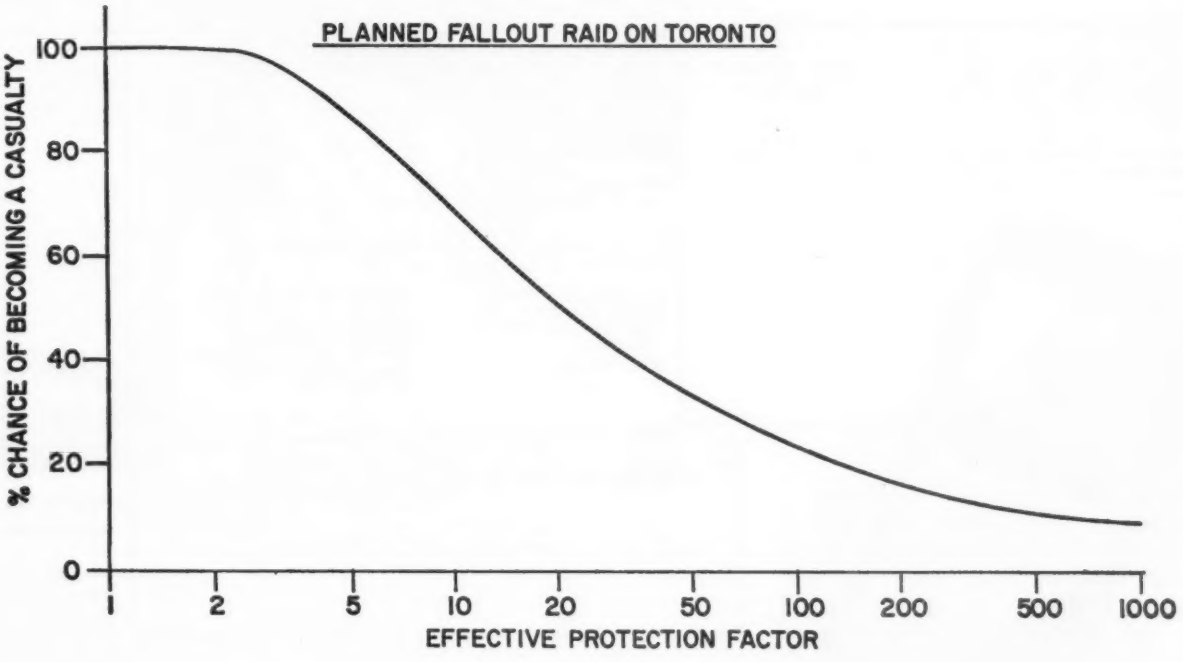


FIGURE 3

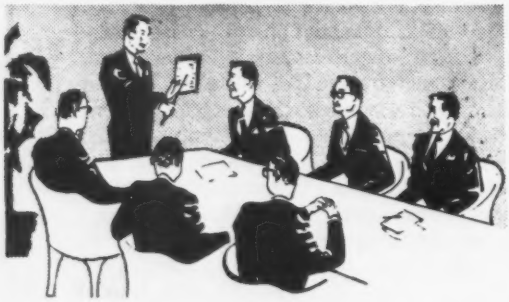
NOT WITHOUT HOPE

Question—Can we escape danger in a nuclear war?

Answer—A number of variable factors influence the dangers to be faced. Nuclear war would be terrifyingly destructive, but much is being done in Alberta to ensure that whatever happens, people in the province will have help in protecting themselves against the hazards of war.

Q—Who is responsible for the preparations?

A—The federal, provincial and municipal governments, together with the people of Canada. In Alberta, the Alberta Emergency Measures Organization, a department of the Provincial Government, better known as Alberta EMO, is responsible for stimulating and co-ordinating the work of government departments and municipalities in matters that are provincial responsibilities.



Q—What agencies are involved provincially?

A—Health, Welfare, Police, Fire, Alberta Government Telephones, Agriculture, Highways, Public Works, and any other agency which is normally under Alberta Government jurisdiction.

Q—Where does Civil Defence (Emergency Measures) fit in?

A—This is the name of the *municipal* organization for planning and training for an emergency. It co-ordinates activities at the local level.

Q—Does Civil Defence (Emergency Measures) increase local taxes?

A—Very little comp ue of the function it performs. Local 5% by Federal Government, 19 only 12½% by local tax

"Your Life is YOU

A six-page, two-c
ing circulated th
the Alberta Eme
ganization. The
as a result of
Exhibitions, follo
and in correspon

A—Canada's military forces have the responsibility for warning the public of attack or the danger of fallout and for rescue operations after an attack. The Canadian Army maintains 190 fallout reporting posts in Alberta and information furnished by these posts would be supplemented by reports from municipal Civil Defence (Emergency Measures) workers trained in radiation monitoring, to give fast warning of approaching radioactive contamination.

Q—Is anything being done to provide medical aid to the injured?

A—Planning for medical relief is the job of the Emergency Health Services. This department of the Provincial Government gives special training to nurses and assists hospitals in preparing disaster plans. The Federal Government is stockpiling $16 million worth of medical supplies to meet possible disaster conditions.

Q—Can I get special assistance in making my plans?

A—Yes. Most of your questions are answered in publications already available through your local Civil Defence organization or from Alberta Emergency Measures, Box 10,000, Edmonton. A coupon below gives a full list of titles. If you have specific questions, Alberta EMO will be happy to provide factual answers to letters sent to the same address. Don't listen to half truths or fanciful predictions. Get the facts now and prepare to survive.

MAIL to: ALBERTA EMO, BOX 10,000. EDMONTON
Please send the publications checked:

- 11 Steps to Survival
- Simpler Shelters
- Your Basement Fallout Shelter
- Blast Shelters
- Survival in Likely Target Areas
- Fallout on the Farm
- Welfare Tips for Survival
- Your Emergency Pack
- It's *Your* Life

Name: _____

Address: _____

**Q—If Edmonton and Cal
what is the use of pl
two cities?**

A—If *direct hits* were sco
the first phase of a wa
weapons, with *no war*
residents would be cas
optimism that neither
target and that there
people wishing to leav

Q—What if no attack wa

A—There would still be t
active fallout coming i
where, and the inescap
would involve missiles
directions. Any malfun
missile anywhere withi

Q—Suppose several missil

A—A five-megaton weapo
75 square miles, but i
miles with radioactive
in this area. Even if
three-quarters of the t
even by fallout.

SO WE'

**Q—What plans have bee
and Calgary areas?**

A—The Federal Governme
tary evacuation. The de
up to the individual
ceived, all roads out
"one-way streets" and
would unite to
pushed off the
following cars.

UR Responsibility"

colour leaflet now be-
hroughout Alberta by
ergency Measures Or-
leaflet was produced
questions asked at
owing public addresses
ndence.

lgary are likely to be attacked,
lanning for people living in these

ored on Edmonton and Calgary, *in*
ar, by an enemy using *five megaton*
rning time, undoubtedly almost all
ualties. However, there is room for
city would be considered a *prime*
would be time for dispersal of
e.

s launched against Alberta?

the very serious problem of radio-
into the province from attacks else-
pable fact that a nuclear exchange
s travelling over Alberta in both
ections could bring down a random
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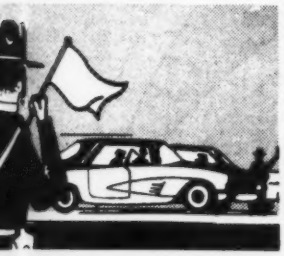
iles fell, would everyone be killed?

n could totally destroy an area of
it might cover up to 7,000 square
fallout, causing death and sickness
six such missiles fell in Alberta,
otal land area would be unaffected

VE GOT TIME



s made to evacuate the Edmonton

ent has decided on a policy of *volun-*
decision as to whether to go or stay is
or family. When a warning is re-
of the two cities would be made
d police forces, under the RCMP,
rol traffic. Stalled cars would be
and the occupants picked up by

Q—How many municipalities are organizing for Civil D
fence (Emergency Measures)?

A—About two-thirds of Alberta's 306 incorporated municip
ties have passed a Civil Defence Bylaw and appointed
Emergency Measures Co-ordinator. (The exact figure
197, as of 1 December 1963).

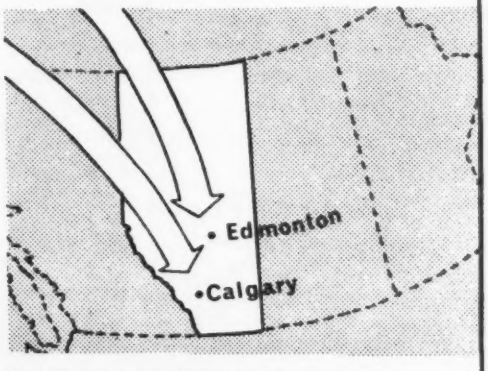
Q—What is a Civil Defence UNIT?

A—A unit is a group of municipalities joining forces for C
Defence organization, planning and emergency action
complete Unit consists of a County or Municipal Dist
together with the cities, towns and villages within
boundaries of that County or M.D. This integra
organization provides economy of effort and efficie
of operation.
Out of 48 Counties and M.D.'s in Alberta, 27 are organi
as Units. In addition, Units have been formed in
Improvement Districts.

Q—Why are the terms "Civil Defence" and "Emerge
Measures" both used?

A—Some Alberta municipalities use one term, some the o
Civil Defence really covers all PUBLIC arrangements, w
Emergency Measures, also includes arrangements for
tinuty of government.

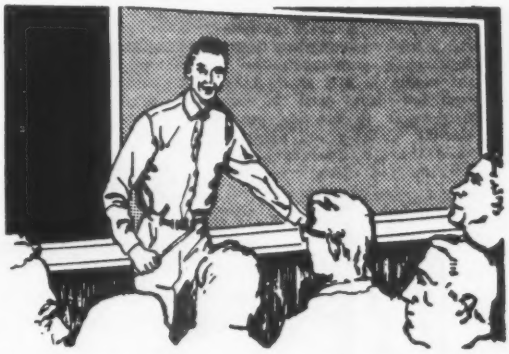
WILL ALBERTA BE ATTACKED?



Q—Are we sure Alberta will be attacked?

A—No. However, since we can't read the mind of a potential enemy. Federal Government planning is based on the assumption that *if* Canada were *deliberately* attacked. Edmonton and Calgary could be considered as among the *more likely* target areas.

A—Immediately a warning is received, sirens will be sounded and every radio and television station in Alberta will switch to a province-wide network operated by the CBC. Recorded instructions have been prepared giving detailed advice and containing the repeated phase "This is a *real* alert", to avoid misunderstandings.



Q—Since time will be short, what about training in advance?

A—More than 25,000 Albertans have attended courses at the Alberta Civil Defence School in Edmonton or extension schools conducted in towns and villages by Alberta EMO instructors. If you wish to learn survival skills, enroll in your local Civil Defence (Emergency Measures) Organization.

Q—What subjects are taught?

A—First aid, rescue, firefighting, home nursing, radiation monitoring, and various welfare skills such as emergency feeding.

WHAT'S IN IT FOR ME?

Q—If there is no war, is all this preparation wasted?

A—Certainly not. People trained in survival skills are real assets to their communities. Civil Defence disaster plans and volunteer workers proved their value in the 1960 train-bus collision at Lamont, which claimed the lives of 17 High School students; in 1962 when a gasoline truck crashed out of control in the Town of Peace River and ignited a block and a half in seconds; and in 1963 when aid was afforded to Whitecourt when floods threatened. These are just a few examples of the value of trained workers prepared to meet natural, as well as man-made, disasters.

Q—What about the arm

to about 20 per cent. In other areas the probability should be reduced to well below 10 per cent.

Fourth, the heavy fallout areas are usually those where most possible targets occur and hence are most likely to include the targets selected for limited attack.

Fifth, major cities require greater protection because the attack may be planned to place these cities in the densest parts of the fallout pattern. An effective protection factor of 100 would be desirable and would reduce the probability of becoming a casualty by about a factor of about 4.

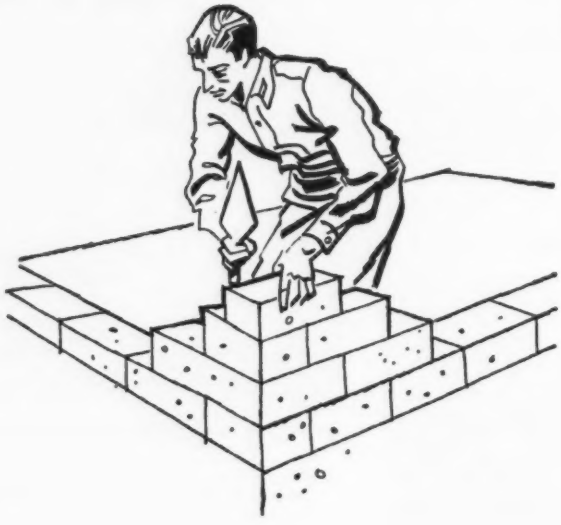
Sixth, cities contain many substantial buildings which afford possibilities for obtaining a fairly large protection factor reasonably cheaply, particularly if the risk of direct fire and blast effects can be regarded as negligible.

Seventh, there is no threshold value for the effective protection factor and the attack is not likely to be changed by the existence of a shelter programme. Consequently it would be possible to build up protection gradually as funds become available, and each instalment of expenditure would purchase some useful protection.

The Ultimate Question

The vital question is, of course, whether an attack on Canada is sufficiently likely to justify expenditure on protecting the Canadian population. The analysis described here does not answer this question, but it does go some way towards it. Under the doctrine of flexible response there are two main methods of protection which might supplement that provided by the US strategic deterrent forces. The first is an indirect way; namely, the provision of theatre forces which can react to local aggression below the level of an intercontinental thermo-nuclear exchange. The second is the provision of active or massive defence in Canada. These methods are not strict alternatives, there will always be something to be said for having some of each; one section of the population will be delighted if defence efforts are directed primarily to keeping war away from North America, another section would prefer some more tangible evidence of protection if war should come.

What we can say as a result of comparing studies of this kind with studies of active defence is that, if it is desirable to make some limited expenditure on direct defence, the provision of fallout shelters seems to be the form of direct defence which will give most protection for a given expenditure. Other forms of direct defence have their value but not all of them offer the same flexibility and generality in regard to cost and level of protection. Moreover the value of fallout shelters is not restricted to the limited war case; although they have greatest value in this case they would still save a substantial number of lives in the case of all-out war. •



FALLOUT PROTECTION SURVEY IN ALBERTA

A province-wide survey of fallout protection available in Alberta buildings will be carried out this summer.

As a result of discussions between federal and provincial government officials the June-September survey, sponsored by the Federal Emergency Measures Organization, will cover all buildings in the province to determine the amount of fallout protection space which could be made available for public use.

An equally important aim of the programme is to develop survey techniques which could be applied to a national shelter survey.

Agreement to carry out the pilot survey in Alberta was reached by the Honourable Charles M. Drury, Federal Minister of Industry, through whom EMO reports to Parliament, and the Honourable L. C. Halmrast, Minister of Welfare and Minister in charge for EMO for the Province of Alberta. The Honourable Jean-Paul Deschatelets, Federal Minister of Public Works, has agreed to organize, administer and conduct the project for EMO.

The Emergency Measures Organization has stated that neither the designation of buildings as shelters nor alterations to bring them up to acceptable shelter standards will be undertaken in this project. The project is part of a national programme of 'taking stock' which will complement past surveys of federal buildings and mines.

During the summer programme specially trained teams will work in all parts of the province to record space and protection factors of federal, provincial and municipal buildings, schools, institutions, churches and all other suitable privately-owned buildings. Shelter factors such as space below and above ground, amount of radiation protection, population capacity, ventilation, water, electric power, and location will be recorded so that they may be analyzed by computer or manually.

While many detailed methods to be used in the survey are yet to be developed the general techniques will be to measure physical dimensions and materials used in the construction of each building. In certain cases it may be necessary to use a radioactive source and gamma camera to determine wall or ceiling densities.

It is anticipated that several professional engineer supervisors will be given special training for the project at the Canadian Civil Defence College, Arnprior, Ontario. Sub-professional staff will be trained in Alberta by the Federal Department of Public Works. Those who will be required to meet the public will be given special instructions and guidance.

Mr. R. G. McFarlane, Alberta Regional Director of the Department of Public Works, who two years ago conducted the Alberta survey of federal buildings, has been assigned responsibility for the survey. His organization will include federal and provincial employees, and university engineering and architectural students hired for summer employment.

PRESIDENT JOHNSON INCREASES CIVIL DEFENSE BUDGET, CUTS DEFENSE SPENDING

WASHINGTON, D.C.—President Lyndon B. Johnson asked for an increase in civil defense expenditures. The request was contained in his 1965 budget document which he sent to Congress January 21.

The request for the increase was in sharp contrast to the overall cuts he made in defense spending. The budget document states: "$0.4 billion is proposed for the civil defense program for 1965, compared with $0.1 billion in 1964.

An effective civil defense program is an important element of our total defense effort. It aims at the achievement of a nation-wide fallout shelter system." system."

The program also requests funds for continued work on systems to warn the population of an attack, monitoring radiation, construction of regional centers for emergency governmental operation and other programs.

The President proposed that the total Defense Department budget be cut by $1.3 billion to a total of $54 billion.

The President's action supports the position taken by Secretary of Defense McNamara last January. At that time, appearing before the House Armed Services committee and describing the relationship that exists between civil defense and the military, McNamara said:

"The effectiveness of an active ballistic missile defense system in saving lives depends in large part upon the existence of an adequate civil defense system. Indeed, in the absence of adequate fallout shelters, an active defense might not significantly increase the proportion of the population surviving an all-out nuclear attack. For this reason, the very austere civil defense program recommended by the President should be given priority over any major additions to the active defenses . . .

A shelter system must take priority over an antiballistic missile system. The reason is simply that the highly expensive antiballistic missile system could be rendered ineffective for protection of lives as a result of fallout from surrounding nuclear ground bursts.

The effectiveness of an active ballistic missile defense system in saving lives depends in large part upon the existence of adequate fallout shelters, an active defense might not significantly increase the proportion of the population surviving an all-out nuclear attack. For this reason, the very austere civil defense program recommended by the President, which I will discuss later, should be given priority over any major additions to the active defenses . . ."

". . . . Hence, I believe that many of the so-called arguments against civil defense are only rationalizations of our unwillingness to face the real world.

It seems to me, however, that the sooner we adjust to the fact that neither conflicting desires nor nuclear weapons can be wished away, the milder will be those conflicts and the less will be the likelihood that the nuclear weapons will be used.

At any given time, the arrangements will have to be based on the information, knowledge, and foresight then available. The arrangements will have to be reviewed and revised constantly in the light of the changes of possible enemy tactics and also in the light of new methods of protection which undoubtedly will be discovered. In other words civil defense can be effective only if it is a continuing effort.

Most probably, in 5 years several additional countries will possess some nuclear weapons, and they may possess them even if the USSR and the United States have an effective disarmament agreement. I do not believe that anyone is willing to say that all of these countries will use their newly acquired power in a responsible fashion. We must hope that the weapons at the disposal of these countries will be few and small enough so that their effect can be very greatly mitigated, even in the opinion of the critics of civil defense, by the shelters which we shall have in 5 years. Without such shelters, we may be at the mercy of every pocket blackmailer."

(DR. EUGENE P. WIGNER, *Princeton University*, Enrico Fermi Award, Atoms for Peace Award)

BRITISH COLUMBIA EMERGENCY FIRE DEFENCE PLAN, 1964

(By Basil Nixon, *Fire Marshal*)

PART I

The aim of the British Columbia Emergency Fire Defence Plan is:

1. To provide the organizational and operational basis for the integration and direction of the Fire-fighting Services of the Province of British Columbia in the event of an Emergency beyond the normal operational capabilities of the Services.
2. To provide Fire-fighting potential to assist the Canadian Army in re-entry operations as required by Civil Defence Order—P.C. 1959—656, Section 3, Clause (C).
3. To Acquit the responsibilities delegated to the Provincial Fire Marshal by virtue of Order-in-Council 438-63, made pursuant to the

Civil Defence Act

R.S.B.C.—1960

At the outset it should be stated that the Plan is founded on the premise that the Canadian Army, in its role of rescue in National Survival Operations, will need fire-fighting services to enable it to reach rescuables, and it is in this field the Plan has been developed.

Because of the number of variables it was deemed necessary to plan in three concepts:

Concept I—A Plan which will develop on the premise that present Fire-fighting Forces cannot be augmented and may be committed to action immediately and without warning.

Concept II—A Plan which will develop on the premise that a strategic warning time is available.

Concept III—A Plan which will develop on the premise that sufficient fire apparatus and manpower will eventually be available to ensure complete control of fire in a holding operation.

It will be appreciated that essentially we must be prepared to supply fire-fighting assistance immediately, using the available resources to the best advantage, hoping to strengthen our forces as additional apparatus becomes available.

Initially, each city, district, town, village and organized area was requested to participate on the basis that in event of emergency the Fire Service would come under Canadian Army direction and control immediately. It is apparent if confusion is to be avoided we must plan for such an eventuality. Wholehearted co-operation was assured and planning started with the formation of a Provincial Fire Advisory Council and Zone Advisory Councils for each of the six Zones in the Province. The Provincial Fire Advisory Council is comprised of the Fire Marshal, Deputy Fire Marshal, the Chiefs of Vancouver, Victoria, Vernon, Trail, Prince George and Kitimat Fire Departments; the Fire-fighting Operations Office of the British Columbia Forest Service and the Senior Staff Officer, British Columbia Area, Canadian Army. In the two possible target areas, Vancouver and Victoria, Fire Apparatus Dispersal Plans are printed and issued to each fire-

fighter in the area, together with an Identification Card and a Personal Information National Survival Operations Card.

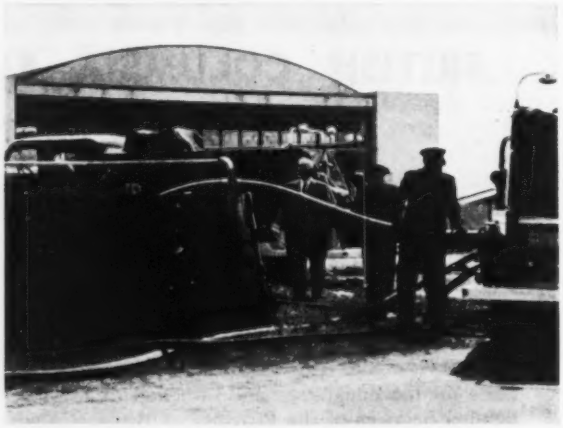
Basically, the plan provides for the supply of fire-fighting units as fire-fighting components for mobile survival columns en route to an incident. The procedure is that Headquarters, British Columbia Area, (Provincial Warning Centre) advises, through a NUDET report using the GEOREF system, the location of the incident. Plotters on the staff of the Fire Marshal confirm the location then call the zone involved, prefixing the message with the current identifying prefix which is known only to senior fire service officers and army personnel. This prefix is followed immediately by CODE 9, which activates the plan. After acknowledgment the Zone chief alerts *all* units in the Zone, then determines, through the army liaison officer at Zone Headquarters, which mobile survival column will respond. The Zone Chief then calls the units required, choosing them in close proximity to the route to be followed by the mobile survival columns and issues joining instructions, giving an ETA at the rendezvous point and a SNAFU directive. The units acknowledge, join the mobile survival column, (which provides logistics) and becomes a component of the mobile survival column under direct military control.

It is imperative that a system of fire-fighting support be available, and as we cannot envisage the time when fire-fighting support columns will be available in this Province, meetings are being held wherein it is hoped that aid will be reciprocal between the United States adjoining the British Columbia border and British Columbia. Our plans call for the organization of seven columns south of the border which will, if uncommitted there, rendezvous and proceed to British Columbia. The same assistance will be provided to the U.S. by the British Columbia Fire Service.

At present communications, convoy, and water-relay exercises are carried out whenever possible. Communication exercises are carried out almost daily and one exercise, called without warning at 3:00 p.m., Saturday, October 5th, 1963, activated the North Pacific Amateur Emergency Network. This network together with the existing operational stations, sent messages to all Zones and had replies from the Zone Chiefs before 5:00 p.m. Communications, however, are a problem, particularly because of mountainous terrain, and until the Fire Service network is completed, arrangements have had to be made with the R.C.M.P. and amateur networks to handle fire traffic. Other networks, Civil Defence, Forestry and Highways, undoubtedly will assist in an emergency subject to their particular commitments.

In water-relay practice we isolate sections of underground mains in lieu of 6-inch hose. This has proven satisfactory but it is imperative that supplies of 6-inch hose and pipe be obtained. Records containing the location of static water supplies are maintained and each Zone has the responsibility of listing locations for pumping units.

All 2½-inch hose couplings, hydrant ports and allied fittings have been standardized and adaptors in break-glass containers placed at each British Columbia-United States Border crossing point to facilitate reciprocal aid internationally. Both open and closed water relay systems are being exercised and our experience suggests that when recommendations are being sought by the municipalities emphasis should be placed upon the acquisition of 840 gpm pumpers. The quantity of water, to be recorded as available, has given some concern, although it is not as great a problem in British Columbia as in other Provinces. Some authorities have suggested that water should be provided in sufficient quantity for approximately five to six hours of fire-



fighting. However, we in this Province feel this is entirely inadequate, particularly for target areas. We recommend a 24-hour supply for Zones other than Vancouver and Victoria, which should have a 48- and 36-hour supply respectively. There are very few localities in the Vancouver and Victoria Zones where water will not be immediately available for relay from the sea, lakes, rivers and other static supplies. Considerable discussion and study has been made of the desirability of trailer versus portable pump. It is our considered opinion that there is no piece of fire apparatus which will not be needed nor which cannot be used in an emergency. We must have both trailer and portable pumps. At present our plans include self-propelled pumpers, trailer pumpers and portable pumps in addition to first aid fire-fighting equipment. It is recommended that capacities of pumpers should be at 150 psi and 120 psi respectively for mobile and trailer types, and these capacities should be 840 gpm and 420 gpm. All mobile pumpers should be fitted with 6-inch intake and outlet connections.

Exercises in moving fire apparatus in column have shown that refuelling must be undertaken when travelling at points not more than one hundred miles from

base. In other words, fueling stations must be provided for every hundred miles and we must not lose sight of the fact that a pumper will be using an amount of fuel for pumping purposes when stationary which could exhaust its supply in a very short while.

It does not take too much imagination to appreciate that restricting the use of conventional apparatus to roads, off-road operation is practically impossible. In order to substantiate this, fire apparatus has been taken over open terrain, and we emphasize that if the fire-fighting components are expected to accompany the mobile survival columns in cross-country operations, (which they undoubtedly will) then serious thought should be given to redesigning to provide apparatus similar to the army units in the mobile survival columns, i.e., half-track and similar features.

In a national emergency there must be no room for doubt as to who is in command of the operation. The Canadian Army has, by virtue of Privy Council Order, the authority and responsibility for the direction of all fire-fighting resources, under the conditions set out. The military commander will therefore allot priorities and tasks in accordance with the advice of the Senior Fire Service Officer of the Province or his representative who will be the Senior Fire Service Officer for the Zone and/or Sector. The technical direction of the fire-fighting operation will be left to the Senior Fire Service Officer present. The Fire Marshal Office has gone to considerable trouble to ensure that the various yardsticks for planning are based on the best authority. Senior fire service officers of the Zone will be expected to expedite the plan within the zones on a basis of providing a fire-fighting capability, integrating the Zones, Provinces and States, plus a maximum fire prevention effort. The Senior Fire Service Officer in each of the Vancouver and Victoria Zones have included in their planning a Sector Operations which is not necessary in the Prince Rupert, Prince George, Nelson and Kamloops Zones. A technical assistant who is an inspector of the Fire Marshal Office has beeen made available to assist the Senior Fire Service Officer of the Zone in planning. This inspector has the responsibility of seeing that the plan is consistent in each of

the Zones and that it is integrated properly to form the overall Provincial Fire Defence Plan. A Zone Planning Committee comprised of the Senior Fire Service Officer of the Zone, who will be Chairman, and two Senior Fire Service Officers resident in the Zone, has been formed to assist in Zone planning. The provincial Fire Advisory Council will rotate meetings to coincide with various Zone Planning Committee meetings until all Zones have been visited.

Our task is one of exigency and any plan must include a concept based upon immediate need, therefore it follows that a concept must be considered, planned and developed with a view to using present facilities, both apparatus and manpower, to the most efficient extent. ●

EDITOR'S NOTE

Part II of the British Columbia Fire Defence Plan, containing Operational Instructions and Duties and Responsibilities, will appear in the June issue of the Digest.

EDITOR'S NOTE:

Two errors in the February issue were noted by an observant reader. The two combat explosions at Hiroshima and Nagasaki took place on the 6th and 9th of August, 1945 and not in May and September, 1945, as stated in the Chart of Announced Nuclear Tests appearing on pages 10 and 11. A missing decimal transposed the 4.09 inches of rain recorded during Hurricane Hazel into a figure representing a considerably higher precipitation.

TESTS AND EXERCISES

THE UNITED STATES OFFICE OF

EMERGENCY PLANNING

EXECUTIVE ORDER 11051 requires that the Director, Office of Emergency Planning, review and evaluate the emergency preparedness of the Federal, State, and local governments to carry out their emergency functions; and that the Director shall from time to time furnish the President overall reports and recommendations concerning these matters.

As tools of the review and evaluation process, tests and exercises provide the Director, OEP, and heads of departments and agencies at all levels of government with a means whereby nonmilitary policies, plans, organizations and procedures may be systematically and methodically investigated, tried, and a determination made as to their adequacy and effectiveness. Operational weaknesses also may be disclosed for which corrective measures can be taken.

The tests and exercises activities carried on by OEP include the design, construction, conduct, and evaluation functions. Thus, a central program is provided for the Federal Government, and where appropriate, for State and local governments.

Exercise Spadefork

Plans for the joint civil-military exercise Spadefork were completed in the first quarter of fiscal year 1963. Following Presidential approval of the plans developed under the leadership of OEP, the U.S. exercise Spadefork was conducted concurrently with, and as a companion exercise to, a NATO- wide event called Fallex 62, during the period of September 6-26, 1962.

The Director, OEP, as overall exercise director, directed and coordinated the activities of Spadefork. The Joint Chiefs of Staff designated a military exercise director for the direction of military activities.

Spadefork was a joint U.S. civil-military command post exercise (CPX), designed to test selected emergency plans, organizations and procedures and to exercise personnel in their emergency functions. Major emphasis was placed on activities dealing with the emergency management of national resources for domestic and foreign commitments, including the maximum utilization of surviving continental U.S. military resources, the continuity of Federal, State, and local governments and selected civil defense plans.

There was substantial participation by 27 civil agencies at the national level with limited play by the field offices. The military forces participated, in place, at all echelons. There was no live play of troops, and no public involvement. State and local government participated in only a few specific tests.

The exercise included a 2-week period during which general deterioration of the international situation was simulated. Participants were gradually provided with a full scenario of national and international events of a simulated emergency. This required Federal officials to review their plans and readiness and to simulate those actions required to solve the problems of the exercise.

These simulated actions included: issuance of emergency regulations, announcements to the public, requests for special emergency authorities, establishment of emergency agencies and activation of relocation sites. The testing emphasized the need for central control and coordination of all such action in an actual emergency.

Exercise Spadefork included a hypothetical nuclear attack which began on September 21, following a period of increased international tension, and lasted for 48 hours.

The simulated attack consisted of a total of 355 nuclear weapons, with an aggregate yield of 1,779 megatons. It was delivered on the North American Continent by both missiles and manned bombers.

The simulated attack pattern was prepared by a joint civil-military group based on one of many possible strategic concepts. This pattern provided for approximately two-thirds of the weapons programed to have struck bases of military significance and the remainder on population and industrial complexes.

The simulated impact of the attack on population was serious. Casualties numbered approximately 51 million, or 27 percent of the pre-attack population. Of these casualties, 20,000,000 died from the effect of blast and 13,400,000 from fallout. The remaining 17 million casualties were listed among the surviving injured. Almost 135 million people, some 73 percent of the population, survived the simulated attack without significant injury. Casualties among military personnel and supporting civilian employees were, in general, higher than overall population casualties, due to the military emphasis of the attack.

The timing of exercise Spadefork, as developed later, was most fortunate since only about 4 weeks elapsed before the Cuban crisis developed. The progress achieved during the exercise period was reflected in the advanced state of preparedness and organizational effectiveness of the Federal Government during the emergency period.

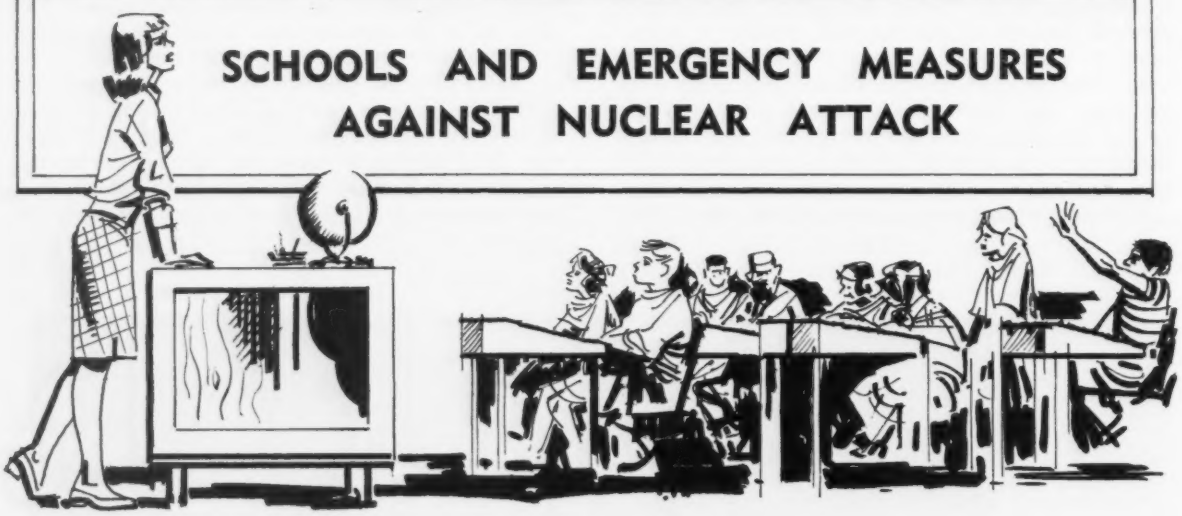
Many of the problems relating to nonmilitary and military defense developed in exercise Spadefork were

similar to the problem which confronted the Federal Government in the Cuban emergency. The exercise provided Federal departments and agencies an opportunity to review and evaluate existing plans and increased the awareness and readiness of their staffs. This awareness and readiness contributed greatly to the prompt and proper reaction of both civil and military departments and agencies, in the real emergency situation of October 12, 1962.

Unlike previous tests and exercises, Spadefork was designed and conducted jointly by both the civil and military segments of the Federal Government. The needs of both segments were thoroughly considered and the exercise evaluation provided valuable data on the status of plans, procedures, and needed improvements. The exercise provided useful lessons in civil-military relationships, particularly in the field of logistics. It demonstrated that the relationship at the national level is effective, but greater coordination is required in the field. •

Five officials representing the Canadian, United States and District of Columbia governments participated in the marking with shelter signs of the fallout shelter area in the garage of the Canadian Joint Staff Building in Washington on January 30, 1964. From left to right, they are: George R. Rodericks, Director of the D.C. Office of Civil Defense; Angier Biddle Duke, Chief of Protocol, U.S. Department of State; Steuart L. Pittman, Assistant Secretary of Defense for Civil Defense, U.S. Department of Defense; and Charles Ritchie, Canadian Ambassador to the United States; Rear Admiral Desmond W. Piers (speaking), Chairman of the Canadian Joint Staff, Washington. The garage shelter area, with a capacity of 1,150 persons, would be open to the public in case of a civil defense emergency. Another shelter area in the basement of the building would accommodate 300 Canadian Joint Staff members. This is the first instance that a foreign mission in the United States has made available a shelter area on its property for use by the public in case of emergency.

SCHOOLS AND EMERGENCY MEASURES AGAINST NUCLEAR ATTACK



The following is reprinted from the Canadian School Journal

It is, of course, the general hope that Canada will never become the object of nuclear attack, but the schools are a part of the community, and just as a community wisely prepares against the possibility of such an emergency, so schools and staff should co-operate in planning for the protection of pupils in a situation that could arise. Children take part in fire drills without undue anxiety, and may participate in activities related to survival in the case of nuclear dangers without undesirable emotional reactions if care is taken to emphasize that preparing against danger is a sensible thing to do.

The schools of Ontario are for the most part unsuited to serve as shelters in case of nuclear emergency, and it would seem in any case that children should be with their families if danger were present or threatening. It is probable that schools would remain closed if an emergency seemed imminent. Otherwise, pupils would be sent home promptly if warning of danger should reach them at school. Under some circumstances, temporary assembly in the school basement or central corridor might be necessary before dispersal to the homes.

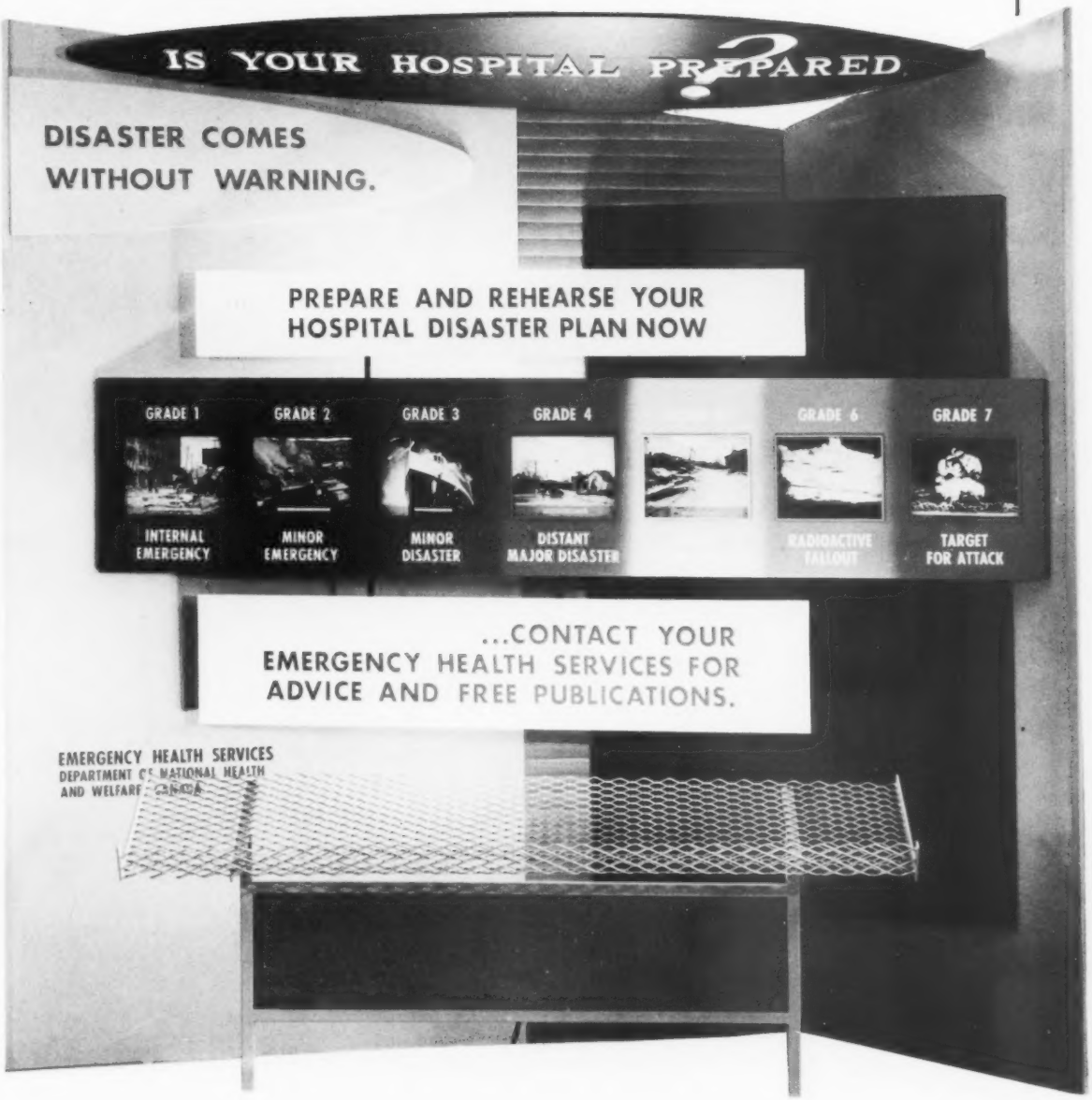
Many Problems

Ontario is a large Province, and the problems of the schools with regard to emergency measures will vary greatly with the type, size and location of the institutions concerned. School boards and their school principals are advised to consult their local EMO (Emergency Measures Organization) co-ordinators for advice regarding the practical steps they may take in the interests of the protection of their pupils. They are also advised to familiarize themselves with the pamphlets that are available with regard to nuclear explosions and the fallout danger. Should a school board not know the name and address of the co-ordinator, if any, of their county or area, inquiry may be made of the clerk of the municipality or of the Emergency Measures Organization (Ontario), 434 University Avenue, Toronto 2, Ontario.

Plan

A plan should be made for emergency action for each school. This plan should consider (i) the way in which warning would be received and given; (ii) drills for the temporary assembly of pupils in protected areas; (iii) instruction regarding dispersal of pupils to their homes; (iv) informing older pupils of the nature of nuclear dangers and the fallout problem. The co-operation of parents, possibly enlisted through the Home and School or Parent Teacher Associations, would be helpful in interpreting the plan to the pupils and the community.

Each plan will be tentative at first, subject to revision as thinking in this field progresses. Courses which are offered in various communities from time to time by the local Emergency Measures Organizations will enable principals and teachers to acquire additional information with regard to the problems involved. •



One of a number of colourful displays produced by Information Services, Department of National Health and Welfare, designed to stress those aspects of Emergency Health or Emergency Welfare Services which would be of interest to public or professional audiences.

These displays, which are available to provincial and municipal officials, demonstrate graphically the importance of civil defence and emergency measures preparations and planning.

If undelivered return to:
EMERGENCY MEASURES ORGANIZATION
Office 420, Daly Building,
Ottawa, Canada

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